

الف)  $\sqrt{x-2} \leq 4 \Rightarrow 0 \leq x-2 \leq 16 \Rightarrow -14 \leq x \leq 18 \Rightarrow D_f = [-14, 18]$

ب)  $\sqrt{x-2} \leq 4 \Rightarrow x-2 \leq 16 \Rightarrow x \leq 18$   
 $x-2 \geq 0 \Rightarrow x \geq 2$   
 $\Rightarrow D_f = [2, 18]$

الف)  $|x| \leq 4 \Rightarrow -4 \leq x \leq 4 \Rightarrow D_f = [-4, 4]$

ب)  $3/x \geq 9 \Rightarrow |x| \geq 3 \Rightarrow \frac{-3}{+} \frac{-}{-} \frac{3}{+} \Rightarrow D_f = (-\infty, -3] \cup [3, +\infty)$

الف)  $|x| - 3 \neq 0 \Rightarrow x \neq 3 \text{ و } x \neq -3 \Rightarrow D_f = \mathbb{R} - \{-3, 3\}$

ب)  $\sqrt{x} - 9 \neq 0 \Rightarrow \sqrt{x} \neq 9 \Rightarrow x \neq 81 \Rightarrow D_f = [0, +\infty) - \{81\}$

الف)  $|x| \geq 3 \Rightarrow -3 \leq x \leq 3 \Rightarrow D_f = [-3, 3]$

ب)  $(x-1)(x+1) \geq 0 \Rightarrow x \neq -1 \text{ و } x \neq 1 \Rightarrow D_f = [-2, 2] - \{-1, 1\}$

الف)  $x + |x| > 0 \Rightarrow x > 0 \Rightarrow D_f = (0, +\infty)$

ب)  $x|x| > 0 \Rightarrow x > 0 \Rightarrow D_f = (0, +\infty)$

$$\text{الف) } 1 - [x] \geq 0 \Rightarrow 1 \geq [x] \Rightarrow x < 2 \Rightarrow D_f = (-\infty, 2)$$

$$\text{ب) } 1 - [x] > 0 \Rightarrow 1 > [x] \Rightarrow x < 1 \Rightarrow D_f = (-\infty, 1)$$

$$\text{ج) } x[x] \neq 0 \Rightarrow \left. \begin{array}{l} x \geq 1 \\ x < 0 \end{array} \right\} \Rightarrow D_f = (-\infty, 0) \cup [1, +\infty)$$

$$\text{د) } -x[x] > 0 \xrightarrow{\text{مبطلات هم علامت}} \Rightarrow D_f = \emptyset$$

$$\text{هـ) } [x - \frac{1}{x}] + [x + \frac{1}{x}] = [x + \frac{1}{x} - 1] + [x + \frac{1}{x}] \geq 0 \Rightarrow [x + \frac{1}{x}] - 1 + [x + \frac{1}{x}] \geq 0$$

$$\Rightarrow 2[x + \frac{1}{x}] \geq 1 \Rightarrow [x + \frac{1}{x}] \geq \frac{1}{2} \Rightarrow x + \frac{1}{x} \geq 1 \Rightarrow x \geq \frac{1}{x}$$

$$\text{و) } a \in \mathbb{Z} [a] + [-a] = 0 \Rightarrow x - \frac{1}{x} \in \mathbb{Z} \Rightarrow D_f = \{x | x = k + \frac{1}{x}, k \in \mathbb{Z}\}$$

$$\text{ز) } a \notin \mathbb{Z} [a] + [-a] = -1$$

$$\text{ح) } 1 - \sin^2 x \neq 0 \Rightarrow 1 - \sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{x} \Rightarrow \sin x \neq \pm \frac{\sqrt{x}}{x}$$

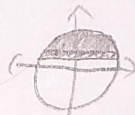
$$\Rightarrow D_f = \mathbb{R} - \left\{ \frac{\pi}{x} + \frac{k\pi}{x} \mid k \in \mathbb{Z} \right\}$$

$$\text{ط) } \tan x + 1 \neq 0 \Rightarrow \tan x \neq -1 \Rightarrow \frac{\sin x}{\cos x} \neq -1 \Rightarrow \cos x \neq -\sin x$$

$$D_f = \mathbb{R} - \left\{ 2k\pi, 2k\pi + \frac{\pi}{x}, 2k\pi + \frac{3\pi}{x}, 2k\pi + \pi, 2k\pi + \frac{5\pi}{x}, 2k\pi + \frac{7\pi}{x} \mid k \in \mathbb{Z} \right\}$$

$$\text{ث) } 1 - \sin x \geq 0 \Rightarrow 1 - \sin x \geq 1 \Rightarrow \sin x \leq \frac{1}{x} \Rightarrow D_f = [2k\pi + \frac{\pi}{x}, 2k\pi + \frac{3\pi}{x}] \rightarrow k \in \mathbb{Z}$$

علامت ياباس



$$\text{ج) } 1 - \cos x \geq 0 \Rightarrow 1 - \cos x \leq 1 \Rightarrow \cos x \leq \frac{1}{x}$$



$$D_f = [2k\pi + \frac{\pi}{x}, 2k\pi + \frac{3\pi}{x}] \rightarrow k \in \mathbb{Z}$$